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APICULTURAL NEWS ITEMS.

EDITORIAL AND SELECTED.

Once I thought it nice to run
And watch the busy bee so fleet;
But I think much nicer fun
The bee's nice honey now to eat.

Notwithstanding the inclemency of the season, our bees have passed the winter and spring in good condition, and are now well supplied with honey and brood. To the wide-awake bee-keeper, the prospect for a good honey yield is very flattering. So remarks the *Kansas Bee-Keeper*.

Burning Words.—Deep feeling is contagious! Earnest words poured forth from burning hearts are sure to *kindle a fire* in the hearts of others. What magic is there in the tear drop! It is a tiny thing, but its *power* on the hearts of others is incalculable! If the heart *palpitates* through every printed line, and *burns* through every word, what enthusiasm is enkindled!

A Norwegian Bee-Book, containing 80 pages, is just received from its author, Mr. Ivar S. Young, of Christiana, Norway. It is nicely gotten up, and although we cannot decipher the language in which it is written, yet we judge, from the extensive apicultural experience of the author, it will meet the wants of our fellow bee-keepers located on the Scandinavian Peninsula.

The Sixth Annual Fair of the Venango County Agricultural Society, will be held at Franklin, Pa., on Sept. 15–17, 1885. In its list of premiums in the department of "butter, cheese, honey, etc.," are two cash premiums for honey and one for beeswax; also the one who secures the most premiums in this department, will receive free one year's subscription to the AMERICAN BEE JOURNAL.

"Millions for Defense."—We are glad to see the enthusiasm displayed when our chosen pursuit is assailed. While we will not make war upon any legitimate pursuit, we shall make a defense when attacked, like the ancient warriors, and the sinews of war will not be wanting. Our "tower of strength" will be in the rightfulness and justice of our cause.

Elegant Bee.—The Bee-Keepers' Association of the Isle of Wight has presented the Princess Beatrice with a silver bee with diamond-studded wings. The Royal family of England have often shown their interest in the industry of bee-keeping. In 1879, when we were at the Royal Agricultural Fair, the Prince and Princess of Wales visited the bee-tent, and asked many questions concerning "the little busy workers" there on exhibition, appearing to be very much interested in the subject.

The Weather in Great Britain.—By the *British Bee Journal* we learn that the weather, previous to May 15, had been most unfavorable for bees. There was snow in Scotland—snow on the Cotswold Hills, biting, bitter winds, with frost and no sunshine, and no natural swarms. Apples, peaches, plums and cherries showed an unusual amount of bloom, but the bees had scarcely been able to work upon it at all. It was thought that should the unfavorable condition of things continue a few days longer, all chance of a harvest from fruit-bloom would be over.

Teaching Apiculture in Schools.—At the Bee-Keepers' Congress held in Erfurt in 1881, Mr. Kwiathowski, of Lissa, stated that Germany annually imports, on an average, about 5,000,000 lbs. of honey, and about 2,100,000 lbs. of wax. He then added: "But do we export? I think not. Now, then, can we so promote the development of apiculture that the new system and the old—the 'mobilism' and the 'fixism'—may both furnish the products necessary for the consumption of the country? This can be done by the school; let the primary normal school have its apiary for the instruction of the future teacher; then let the garden of this teacher have also its apiary to assist him in teaching what he has been taught; after which comes the organization of country associations for the application and trial of the right methods; and finally let itinerant professors be appointed to go everywhere to explain these methods in full."

National Bee-Keepers' Union.—The universal response to the suggestions given on pages 339 and 346 of the BEE JOURNAL is: *Organize immediately in defense of our rights.*

By request, we present, on the next page, a Constitution for approval. Now, suggestions are in order—then energetic work!

The management must devolve upon some one, and as no one has been suggested as General Manager but the editor of the BEE JOURNAL, he will accept the position under the temporary organization until an election can be obtained under the Constitution. He neither seeks nor desires the office, but accepts it as a *duty* under the circumstances, and requests suggestions for the other four temporary officers.

A member's Receipt Book will be at once prepared, and any one sending 25 cents (or more) will be duly recorded as a member, and receive a receipt, which will entitle the person therein named to all the benefits of the Union. All amounts over the fee of 25 cents will be credited to the Defense Fund, to be used as occasion may require.

We would suggest that the first meeting be held at the same time and place as the annual meetings of the North American or Northwestern Conventions, at Detroit or Chicago, next fall.

The Value of Honey imported into Great Britain during the month of April, 1885, amounted to nearly $5,0000.

E. Terraberry, a bee-keeper of High Bridge, N. J., has had the sad misfortune to lose, by death, his entire family, consisting of wife and two children—one 7 and the other 12 years of age. His home was visited on May 8, by diphtheria, that fatal malady, and in three weeks caused the terrible havoc. Mr. T. may be assured that he has the earnest sympathy of the entire bee-keeping fraternity. In the East he has long been known as one of the most advanced apiarists of the State in which he resides.

The Relation of Bees to Plants is the subject of an excellent article by Prof. Frank Cheshire, of London, England, on pages 374 and 375 of this issue. It is quite interesting and very appropriate just now. Another article on page 376, translated from the *Bienen Zeitung*, giving extracts from Sir John Lubbock, Dr. Dzierzon, Darwin, Huber, and other noted apiarists and scientists; also another, on the same page, giving the results of experiments on the fertilization of the clovers, by Prof. Beal, of the Michigan Agricultural College, are all timely and interesting now.

Can Bees Commit Trespass?—The Chicago *Times* discusses this subject in the following language:

"Mr. S. I. Freeborn, of Ithaca, Wis., has been made defendant in a novel suit. He keeps a lot of bees at some distance from his house, and about a mile from a pasture mostly covered with white clover, and occupied by about a hundred blooded sheep. The owner of the pasture and sheep brings suit to recover $500 damages done by the bees, which, he declares, come in countless hordes, molest the sheep, and drive them from their feeding-places. He also affirms that last season his sheep became thin in consequence of the annoyance of the bees, and that many of them died during last winter. The bringing of this suit has created considerable excitement among bee-keepers in Wisconsin, and the proposition has been made that they contribute money to help pay the expenses of defending the suit. It is understood that this is to be a test case. If the plaintiff succeeds in gaining it, other bee-keepers will be likely to be sued to recover damages done to pastures, vineyards, and gardens by bees. It is possible that the "little busy bee" may become the cause of many vexatious lawsuits. If damages are awarded in this case, any man owning a few square rods of land, devoted to almost any purpose, may try to recover damages from all the owners of bees in the vicinity. Nearly all the naturalists, from Aristotle to Darwin, have given their testimony in favor of the good work accomplished by bees in fertilizing flowers, and making it possible to produce large crops of clover seed. Recently bees have been introduced into various parts of Australia by the owners of extensive sheep-runs, for the express purpose of increasing the production of clover in the pastures. Many fruit-raisers in this country and Europe have found it to their advantage to keep bees, not for the honey and wax they gather, but for the benefit they produce in fertilizing flowers. Bees have been accused of puncturing grapes, and now they are charged with worrying a flock of sheep!"

A few days ago some small fruit gardeners called at the office of the BEE JOURNAL, and incidentally remarked that they did not keep bees for their products—honey or WAX—but to fertilize the bloom of their fruit and vegetables, and thus enhance their business. We give considerable space in this number of the BEE JOURNAL to subjects bearing on this topic, believing it to be the most important matter now for discussion by bee-keepers.

QUERIES

WITH

REPLIES by Prominent Apiarists.

When to Transfer Bees.

Query, No. 75.—When is the best time to transfer bees from old "gums" to movable-frame hives?—Edgar Co., Ill.

W. Z. HUTCHINSON says: "During a flow of honey in the spring."

DADANT & SON say: "During apple blossoms."

G. W. DEMAREE answers as follows: "I transfer bees just as soon in the season as I find them getting enough honey from the fields to keep down robbing."

DR. C. C. MILLER replies thus: "During fruit-bloom."

DR. G. L. TINKER says: "The easiest, if not the best, time to transfer bees, is just before fruit-bloom, as there is the least honey in the combs then."

PROF. A. J. COOK answers thus: "In the middle of a warm day during fruit-bloom, if the old method is used, as the combs are then light, and the bees are good-natured."

G. M. DOOLITTLE replies as follows: "I prefer to wait till 21 days after the prime swarm has issued from the colony, as then the young queen will have only just begun to lay, and all the worker brood will be hatched out, so no loss of brood will occur. The next best time is in apple-bloom, although it can be done successfully, if care is exercised, at any time when the bees can fly."

JAMES HEDDON says: "By 'modern transferring,' as described on page 367 of the BEE JOURNAL for 1883, any time after the hives are well filled with bees and brood, and the weather is warm. By the old method of tying in old combs, many prefer the time of apple-bloom; and 15 to 20 days after the colony has cast a prime swarm is a good time, if you have a honey extractor."

Mouldy Brood-Combs.

Query, No. 76.—What is the best to do with mouldy brood-combs?—B. K.

MESSRS. DADANT & SON reply: "Put them where they will get dry, and then give them to strong colonies; they will clean them. If old and thick, melt them up."

G. W. DEMAREE remarks thus: "I hang them up where they will become thoroughly dry, then brush away the dust with a stiff brush, and give them to strong colonies (not too many at a time) to be cleaned by the bees."

DR. C. C. MILLER says: "Give them, one or two at a time, to strong colonies."

DR. G. L. TINKER answers thus: "Bees do not like to touch mouldy combs, and will not until forced to do so for the want of room. It seems to me the better plan would be to cut out the mouldy parts and replace them with clean comb. Mouldy comb is worthless for wax."

PROF. A. J. COOK remarks thus: "Give them, one at a time, to a strong colony, after cleaning them as well as one can; or else melt them up."

G. M. DOOLITTLE replies as follows: "Hang them, one at a time, in a strong colony after the weather gets warm, when the bees will clean them up nicely in 24 hours."

JAMES HEDDON remarks thus: "If not too mouldy, and good in all other respects, place them in the center of strong colonies, as soon as it is safe to spread the brood, and let the bees clean them up, which they can do cheaper than the bee-keeper."

W. Z. HUTCHINSON advises thus: "Melt them up into wax if they are very mouldy; if not, a comb or two at a time given to a strong colony, will secure their being cleaned up."

Youth's Companion.

Susie's Swarm of Bees.

"Oh, grandpa!" said Susie, one morning,
"Your bees have come out of their coop,
And they're all cuddled up on the peach-tree
In the funniest kind of a group."

Our Susie is just from the city;
She notices all that she sees,
And her prompt though inaccurate warning
Saved grandpa a fine swarm of bees.

Defense Fund.

Here are some responses in addition to the Correspondence published on the other pages of this BEE JOURNAL:

We like Mr. Heddon's plan of a defense organization for bee-keepers, and will vote for the Editor of the BEE JOURNAL to act as secretary and treasurer. You can count on us for all the help we can give.—DECKER & ANGELL, Boyceville, Wis.

I have just read of Mr. Freeborn's suit; it is a great bugaboo. Doubtless it will cost something to defend it if tried, but I do not think any one will be foolish enough to let such a suit come to trial. They might as well swear to the identity of a dog that killed sheep, when the dog was not seen, as to swear that they were Mr. F's bees. When they prove the individuality of a honey-bee, they will be pretty sharp. If Mr. F's bees had a private mark, then they might prove that they were his that did the damage.—J. H. ANDRE, Lockwood, N. Y.

Enclosed please find two dollars to assist in defense of Mr. S. I. Freeborn, of Ithaca, Wis., in the suit, "sheep *vs.* bees."—HENRY W. STEPHENSON, Cincinnati, Ohio.

Put my name down on the list of the Bee-Keepers' Defense Organization for one dollar, and let me know when it is wanted.—HENRY MARDEN, Roodhouse, Ills.

By all means we must stand by Mr. S. I. Freeborn in his suit about the bees and sheep. Let it cost what it will, we must do all that is possible to defend the case. Draw on us for our proportion of the cost at any time—whether it is $1 or $10, we will do our share.—E. FRANCE & SON, Platteville, Wis.

This Wisconsin case must be defended to the last. Enter my name for $1, and I will make it $5 if necessary.—C. H. DIBBERN, Milan, Ills.

My dollar is ready for the "defense fund." I hope that the "big guns" will soon perfect the organization.—P. J. ENGLAND, Fancy Prairie, Ills.

CONSTITUTION OF

The National Bee-Keepers' Union.

ARTICLE I.—This organization shall be known as the "National Bee-Keepers' Union," and shall meet annually, or as often as necessity may require.

ARTICLE II.—Its object shall be to protect the interests of bee-keepers, and to defend their rights.

ARTICLE III.—The officers of this Union shall consist of a President, three Vice-Presidents, and a General Manager (who shall also be the Secretary and Treasurer), whose duties shall be those usually performed by such officers. They shall be elected by ballot, and hold their several offices for one year or until their successors are elected and installed; blank ballots for this purpose to be mailed to every member by the General Manager.

ARTICLE IV.—The officers shall constitute an Advisory Board, which shall determine what action shall be taken by this Union, upon the application of any of its members for defense, and cause an assessment to be made upon all the members when the funds may become necessary for defense.

ARTICLE V.—Any person may become a member by paying to the General Manager an annual fee of 25 cents, for which he shall receive a printed receipt making him a member of this Union, entitled to all its rights and benefits. This annual fee shall be due on the first day of July in each year, and MUST be paid within 30 days in order to retain membership in this Union.

ARTICLE VI.—Donations for the Defense Fund, in addition to the membership fee, may be made at any time and of any amount.

ARTICLE VII.—The annual fees paid by the members shall become a general fund, from which shall be paid the legitimate expenses of this Union, such as printing, postage, clerk-hire, etc.

ARTICLE VIII.—Meetings of this Union shall be held at such times and places as shall be designated by the Advisory Board, or upon the written requisition of ten members.

ARTICLE IX.—This constitution may be amended by a majority vote of all the members at any time.

☞ The Bee-Keepers' Association of Central Illinois will meet at Bloomington, Ills., on July 15, 1885, at 10 a. m.

WM. B. LAWRENCE, *Sec.*

Explanatory.—The figures BEFORE the names indicate the number of years that the person has kept bees. Those AFTER, show the number of colonies the writer had in the previous spring and fall, or fall and spring, as the time of the year may require.

This mark ⊙ indicates that the apiarist is located near the centre of the State named: ♂ north of the centre; ♀ south; ○+ east; +○ west; and this ♂ northeast; ○‘ northwest; ○, southeast; and ♀ southwest of the centre of the State mentioned.

For the American Bee Journal.

What Causes Bee-Diarrhea?

8—W. Z. HUTCHINSON, (80).

On page 325, Mr. Doolittle reviews my article upon the above subject, by quoting one-half of my closing sentence. This is like attempting to make comb foundation with only one die. Two dies, or both halves of this sentence, are needed to get more than a one-sided impression. In fact, so far as solving the wintering problem is concerned, the latter half of the sentence is the more important. The whole sentence reads as follows: "Perhaps this (the mistake) is in attempting to keep bees out of their native clime, without recognizing and complying with the changed conditions." Keeping bees out of their native clime does not produce diarrhea; it is keeping them there without complying with the changed conditions. During the past cold winter many bees have wintered perfectly in the far North; if like causes produce like effects, and keeping bees out of their native clime produces bee-diarrhea, then all of the bees out of their native clime should have perished.

Mr. Doolittle says: "Let some one produce a case of bee-diarrhea without confinement." Something causes bee-diarrhea. Frequent flights are an antidote for the disease. When bees enjoy frequent flights, the disease cannot develop, because the effects of the cause are removed so quickly. A ship sinks in the ocean because it leaks. If the water be frequently pumped out, so that it does not become "overloaded," it will not sink. Let the pumping cease for a sufficient length of time, and the vessel will sink, and why? Is it because the water is not pumped out, or because it runs in? In bee-keeping we cannot "pump" when we please, so we propose to "stop the leak." Mr. Heddon writes me that on April 19, he took from his cellar more than 60 colonies that had been confined 151 days. The combs and covers were damp and moldy, but the bees were in perfect health; his white shirt-sleeves, the white hives and covers failed to show a particle of discharge of any kind. The bees were as slim as in the fall. We have had many, many such instances where bees were confined as long a period as it will ever be necessary to confine them, with no traces of diarrhea; hence, when the cause of bee-darrhea is removed, when we "comply with the changed conditions," we can truthfully say, confinement does not cause bee-diarrhea.

Mr. Doolittle quotes from Mr. Demaree's and Mr. Tinker's writings to show that, "the trouble is wholly incident to long, cold weather." If this is true, then why are some bees dead and some alive in spots all over the country?

Mr. Doolittle wishes to be put on record that confinement, long enough continued, will always result in diarrhea, no matter what the food, provided the bees do not starve. This is, of course, only assertion, and, even should it prove true, it would be of no practical value, as we have no desire to confine our bees more than 5 or 6 months; and it has been proved, time and again, that they can be confined that length of time with not a trace of diarrhea.

Mr. Doolittle says: "To those who claim that the food has all to do with it," etc. Will Mr. D. please name any one who makes this claim?

It seems strange that neither Mr. Heddon, myself, nor many others can get a case of bee-diarrhea when the pollen is practically all removed, and Mr. Doolittle succeeds so readily.

Mr. Heddon writes me that the word pollen should not be confounded with bee-bread; that bee-bread is one form of pollen—a form that he has demonstrated that the bees will not touch if the temperature is kept high enough; that this newly demonstrated fact, regarding the effect of temperature upon the consumption of bee-bread, settles nine-tenths of the difficulty alone; and that when he (Heddon) discloses his promised system of bringing bees out in a starving condition in the fall, the honey being sold, bee-keepers will find the feeding process simply economy and fun.

Lastly, Mr. Doolittle says: "If we would be sure that no pollen or meal is in the hive, we must wait about our preparations for winter until it is so late in the season that the syrup fed could not be sealed over; in which case it would be worse than plenty of pollen." In reply to this I would say that I know of an instance in which more than 100 colonies were wintered in a damp cellar upon thin sugar syrup, which was fed so late that the bees sealed scarcely any of it, and did not evaporate it to full honey consistency, yet the bees came out in the spring in splendid condition.

Rogersville, ♂ Mich.

For the American Bee Journal.

Haldimand, Ont., Convention.

The Haldimand Bee-Keepers' Association met at Nelles' Corners, Ont., on May 29, 1885. The minutes of the previous meeting were read and approved.

Reports from 29 members showed 547 colonies last fall and 392 this spring. The cause of loss was generally attributed to leaving too many frames in the hive, thus giving the bees too much space to keep warm. A few colonies starved to death for want of stores; a few perished from dampness, and a few from diarrhea.

The question, "Which is the most profitable to produce, comb or extracted honey?" was discussed, and the majority seemed to favor extracted honey.

On the subject of marketing honey to the best advantage, the President thought that the first thing to be done was to put it up in neatly shaped packages, nicely labeled, but not too large ones. He preferred glass cans, as they could always be sold for what they cost, while people did not care to pay for tins. Mr. DeCew had tried glass and tin cans, labeled with his name, and found that the people preferred to buy honey in glass packages. Mr. Holterman believed glass was the best, as the package could be sold for what it cost; but for shipping a long distance, he would recommend tin. He thought small packages were preferable.

After discussing other important questions, it was decided that the meetings of the County Bee-Keepers' Association be held at Cayuga, Nelles' Corners, Jarvis and Hagersville; and that the next meeting be held at Jarvis, on Sept. 25, 1885, at 11 a. m.

E. C. CAMPBELL, *Sec.*

For the American Bee Journal.

Black Bees, Bee-Pasturage, etc.

BYRON HAMS.

On Sept. 16, 1884, I received an Italian queen and placed her in a hive of black bees, destroying the black queen on the same day. To-day (June 8) I find a few black bees coming out and going into this same hive, thus making them about 8 months old. I find, upon examination of my hives to-day, that each frame in the brood department contains from two to five pounds of honey, all having been gathered within the past two weeks. Black locust yielded a wonderful amount of honey for two days. Honey locusts are in bloom now, and are very rich in nectar. The northeastern part of this county (Audrain) is covered with white clover which blooms from May 20 until frost. We have also a fine autumn honey-flow from Spanish-needle, which grows and blooms in great abundance all over this county. I had one colony of blacks which gathered 60 pounds of surplus Spanish-needle honey in two weeks. We have plenty of wild plum and crab-apple to start bees booming early.

I believe that my bees are preparing to diet principally on bee-bread, next winter, as I have never before seen half as much in the combs. Next winter I am going to fill two hives chock-full of combs containing bee-bread, and two others with pure honey and sugar syrup, and see for myself what the difference will be.

Bees wintered well in this neighborhood. A neighbor of mine lost 2

colonies out of 80; all being wintered on the summer stands without any protection. I believe that the long continued cold caused nine-tenths of the losses in out-door wintering, especially so with hives having shallow frames.

I, for one, second Mr. Heddon's motion, and am ready with my dollar to help in what I believe to be a good cause.

Worcester, ⊙ Mo.

London Journal of Horticulture.

Bees in Relation to Flowering Plants and Fruit Production.

The following is a brief report of a Lecture delivered at South Kensington, London, by Frank R. Cheshire, Esq., F. R. M. S. After referring incidentally to the greatly increased profits now attainable by bee-culture, in consequence of our improved methods of management, Mr. Cheshire remarked:

If we take our stand before a flourishing hive on a fine summer day, we note that the busy workers as they settle, at their return from their excursions in the fields, bear in numerous instances, variously colored pellets on the tibia of their hind legs. The ancients supposed these masses to consist of wax, and even Reaumur fell into this error, referring to these pellets as "*la cire brute.*" We now know perfectly well that they are composed of multitudes of pollen granules which have been gathered by a process we shall hereafter examine, and the use of which we shall presently see, and that wax is not collected but secreted by glands situated beneath the abdomen. Could we follow* these workers into the darkness of the hive and here observe their movements, we should find that they walk up the sides of their combs seeking first a cell into which the pollen may be appropriately placed, and they then turn to another, either empty or already devoted to honey, and into that they discharge from their honey-sac the nectar which they have secured from the honey-glands of the blooms visited.

Two questions now present themselves to us: 1. Why do the bees so industriously gather these substances? 2. Why do blooms provide them? It is to the second of these questions that we must devote our most serious attention, but the first, if we would really understand the second, must not be overlooked. If we were to proceed to examine the combs of the hive just referred to, we should find many hundreds of their cells, containing each a tiny, pearl-colored egg about 1-14 of an inch long, and 1-70 of an inch in diameter. These eggs have been deposited by one insect, called, although very inappropriately so, the queen, for she in reality exercises no authority, and when old and fading, is turned out in favor of a more vigorous successor. This mother-bee, for so we may more accurately designate her, is capable of depositing no less than from two to three thousand eggs daily during the breeding season. She inserts her abdomen into a cell, and in two or three seconds withdraws it, when the egg is found adherent to the cell-base. This duty of ovipositing is so onerous that she is excused all care of her numerous progeny, which is attended exclusively by the workers, formerly but falsely called neuters, for they are really females, but with their reproductive organs aborted.

The egg kept warm by heat constantly produced by oxidation of honey in the bodies of the workers, develops within it its germ, and in about three days a very small grub emerges, with but imperfectly formed mouth, no distinguishable eyes, and no organs of locomotion. It is a necessity that food should be brought to it as it lies at the bottom or back of the cell. The workers acting as nurses now sedulously tend it, preparing in their bodies a highly nutritious food resembling thin arrowroot and elaborated from water, honey, and pollen. The two latter we have previously traced to their origin, and it needs only now be said that the first of these is a true force-former, giving to the grub energy for movement, and for the vital processes to be continued within it, while the pollen is a true tissue-former, being rich in nitrogen, and containing potash, phosphorus, and sulphur salts. The food is poured over the body of the grub by the nurse, and so liberally that the bantling literally floats in it; one side of the body, however, always remaining dry, so as to be capable of taking in a due supply of air through the eleven spiracles or breathing-holes which may be traced in a line along its side. The imperfect mouth has its work supplemented by an ability to absorb aliment by osmose, through any portion of the skin. Rapid growth is the result, and soon a large, fat, "gentle"-like creature fills two-thirds of the cell.

The ever-watchful workers at this point commence to imprison it by placing over the mouth of its cell a cover, technically called the sealing, which is composed of pollen-grains and wax shreds, and which is pervious to the air, so that the needed amount of oxygen may reach the grub within. The grub also makes preparation for the wonderful transformation which awaits it, by building over itself a silken cocoon. During twelve days developments and alterations are continued, when changes of a most radical nature are effected. The nervous system is completely recast. Instead of a chain of pretty equal ganglionic masses running the length of the digestive tube, nerve-centres are established in the neighborhood of the insertion of the wings and legs to give to these parts the abounding energy they require in the perfect insect. The mouth and eyes have each now considerable ganglia, and the sting is also provided with its source of stimulus. Legs marvellous in form and adaptation, and carrying, cleaning, gathering, feeling, and modelling appliances are evolved. Four beautiful wings are provided, new glands have made their appearance, eyes of great complexity are now possessed, and last but not least, a tongue has presented itself, so wondrously perfect and minutely delicate, that some points in its structure are until now furnishing the microscopist with unsolved if not insolvable problems. In a word, the soft-bodied helpless grub has become a bee. We now see why honey and pollen are gathered. Let us now address ourselves to the second, and inquire why the blooms furnish these substances to their insect visitors.

Blooms are produced by plants in order that seeds may follow, and so the race be continued. Two parts are essential to this reproduction—the anther and the pistil, the latter very generally occupying the central position. The anther is usually a double-celled pouch, the contents of which by segmentation breaks up into a number of perfectly similar parts called pollen-grains, which though minute, are complex in structure. When these are mature the anther splits or dehisces, and the pollen escapes, but it needs in some way to be applied to the termination of the pistil called the stigma. When this application is effected, the pollen-grain absorbs moisture, its interior portion swells, and actually throws out a tube which often grows to a great length in making its way towards the unimpregnated nucleus of the ovule which is situated in the ovary at the base of the pistil. In this nucleus a large cavity filled with protoplasm has developed, called the mother-cell, within which we find the embryonal vesicle to which the contents of the pollen-grain is transferred by the channel of the pollen-tube. This is fertilization, and upon it depends the production of seed, for the new individual plant has its beginnings from this interfusion.

An examination of most blooms will show that the essential organs before referred to, are so placed that an accidental or unaided transfer of pollen to stigma is unlikely, and where this arrangement of parts is not found, it frequently occurs that the anthers ripen and dehisce much before, or not until sometime after, the stigma has so matured as to be ready for pollination. In the former case, as we may observe in the common garden Nasturtium (*Tropœolum majus*), the pollen is all carried away by insects by the time the stigma presents itself, so that if fertilization be effected it must be through the bringing of pollen from other blooms still shedding it. Insects are the means which accomplish this, and to secure their visits the blooms spread them a banquet.

The apple, he remarked, is called by the botanist, a pseudo-syncarpous fruit, because it may be regarded as five fruits gathered into a unit by an envelope formed by a development of the calyx. If an apple be cut across we see five compartments or dissepiments in the core, each one of which should contain pips or seeds. The

bloom which preceded the fruit had five stigmas, each one of which communicated with a dissepiment and required an independent fertilization. Bees seeking honey would, by getting their breasts (furnished as they are with abundance of long-webbed hairs) thoroughly dusted with apple pollen, and flitting to a bloom whose stigmata had reached the receptive condition, bring about fertilization. It would, however, frequently happen that three or four of the stigmata only would be pollinated. In this case an apple, though an imperfect one, would be produced. Trees agitated by the winds frequently drop a quantity of their fruits, hence known as windfalls, but the actual cause of this dropping is in by far the largest number of instances defective fertilization.

In an examination made sometime since, of a large number of windfalls, less than 4 per cent. were found to have fallen through injuries traceable to insect pests, while the remainder had received pollination in from one to four dissepiments only.

Fertilization is followed by a determination of nutrition towards the seeds, and the parenchyma of the apple as a protective envelope gathers around them. If, therefore, we cut a defectively fertilized apple across the middle, we find a hollow, shrunken side lying over the unfertilized portion of the core. These facts taken together show conclusively how completely our apple crop is dependent upon insect agency, and amongst these the hive-bee takes the most important place.

In the case of the strawberry, the parts popularly denominated seeds which crowd its surface, are really the fruits technically called achenia, while the strawberry itself is really a succulent development from the flower-stalk. The stigma each of the achenia carries must be fertilized by insects which are attracted by the honey secreted by a ring of glands situate at the base of the strawberry. The anthers are wide set, and as the insect walks around the bloom applying its tongue to the circle of glands, one side of its body is dusted with pollen from the anthers, while the other is applied to the stigmatic faces. In passing from bloom to bloom it frequently reverses the order of its progression, sometimes going around by turning to the right and sometimes to the left; as a result, the pollen gathered upon one side of the body is probably transferred to the stigmas of the next flower visited. As in the case of the apple, so here, fertilization determines nutrition. The placentæ of the fertilized achenia increase enormously, the strawberry grows and matures, but where any of the stigmas escape impregnation, there the strawberry remains without growth, while the other parts are rapidly increasing around it. The examination of a few fruits would be sure to supply examples where in circumscribed spots no progress has been made since the first full expansion of the bloom. The achenia are close set and green, and the flesh of the strawberry is there crude and hard, while the rest is sweet, soft and luscious. Imperfect insect work is again the explanation, bringing before us the remarkable fact that no perfect strawberry can be produced without, perhaps, from three to four hundred independent fertilizations, accomplished, it may be, by the busy hive-bee, which, in filling the niche in which the great Creator has placed it in unselfishly laboring in providing for the wants of its younger sisters, is unconsciously supplying to its master not honey only, but honey and fruit.

The raspberry, although of another type, somewhat resembles the strawberry in the multiplicity of its stigmas (60 or 70 to each bloom), the wide setting of its anthers (about 80 or 90 in number), and its circle of honey-glands. Similarly, too, the insect visitor in seeking nectar passes between the anthers and stigmas, applying its right side to one and its left to the other. Each seed fertilized by these visits is soon surrounded by the luscious envelope which protects the seed from injury, and makes the manufacture of raspberry jam a possibility. These rounded red masses with their enclosed seeds, technically called drupels, are never formed unless fertilization has taken place; neither ripening nor growth being possible in its absence. We see then in an aspect which may be new to many of us, that this wondrous scheme of Nature has correlations which we never could have anticipated; that a large part of the insect world is complementary to plant-life, and plants in turn the sustainers of these insects; and that man, although he can plant his trees, is in no small measure dependent for a crop, upon the assistance of those little laborers, which, by their unconquerable industry, supplied his table with sweets for long ages before he discovered the uses of the sugar-cane.

London, England.

Practical Farmer.

Marketing Honey.

W. G. PHELPS.

With those who make bee-culture a specialty, the marketing of their honey becomes a matter of much concern. Even those who produce honey in moderate amounts are sometimes puzzled how to dispose of it to the best advantage. With a surplus product of from 1,000 to 6,000 pounds, the difference of a half-cent per pound in price amounts to quite a sum in the aggregate. Style and neatness in preparing either comb or extracted honey for market, has an important bearing upon the results. If taken into market in a soiled state, and dealt out in a slovenly manner, no one need expect remumerative prices. This was well illustrated recently in an adjoining city, where marketing from wagons is still in vogue. One producer offered his one-pound sections of honey neatly placed in paper boxes, with fancy labels, being both attractive to the sight and handy for customers to carry to their homes. His honey, hard as are the times, sold readily, while that of another producer, scarcely half a block away, dealt out in broken masses and a clumsy manner, hardly sold at all, even though offered at much cheaper rates.

Style of package has much to do with quick sales nowadays, and this is no less true in selling honey than any other product. With some apiarists the idea prevails that there is an overproduction of honey, as of almost every other production; hence, the depressed prices. Comb honey now sells at from 15 to 16 cents per pound, wholesale, where a year or two since it readily brought 18 and 20 cents. But everything else is correspondingly lower, it must be remembered, and sales are slow in almost every department of trade. It is perhaps nearer the truth to assert that the unsystematic methods of producing and offering honey for sale has much to do with depressing the honey market. The aforementioned incident, of methods of honey selling, will illustrate this point.

But the main object of this article is to suggest and impress upon those who produce honey, the importance of creating a *honey market* for honey. It is no wild assertion to state that scarcely half the American people make use of honey as an article of diet. Its virtues and medicinal qualities are, in fact, but little realized; the fault lies at the door of the producer. The introduction of honey into general use as a staple article of use only need be accomplished to create a regular and continual demand for it. This has been accomplished in various ways. Some bee-keepers have sent small, free samples to each family, with statement of price per pound, and in quantities. Others have circulated small, neat pamphlets (gotten up for the purpose), giving the virtues and advantages of honey *versus* the glucose and similar products.

Again, enterprising apiarists have put up their honey in small, pound and half-pound jelly-glasses, which, neatly labeled, generally meet with quick sales if placed at the country groceries. Comb honey, if produced in small sections, can likewise be offered in the same way, placed in 20-pound cases with panes of glass inserted in one side to show the snowy combs. A little pains on the part of the store-keeper in calling attention to the honey will generally result in disposing of a good quantity of it.

All the methods given above may be combined with success. A little energy and push will accomplish much in creating a home market, even in small villages. When the miserable glucose mixtures, falsely termed "golden drip," etc., are superseded by the daily use of pure honey, then will the many forms of disordered stomachs and kindred complaints (superinduced by the excess of acid in these self-same glucose compounds) cease, and health, wealth and happiness ensue as a consequence.

Galena, ó Md.

Bienen Zeitung.

Fertilization of Flowers by Bees, etc.

(Translated for the BEE JOURNAL.)

During the past few years zoologists and botanists have devoted much earnest study to the fertilization of plants; book-shelves are weighed down with their records on this subject. Nectaries secreting their liquid sugar only to attract insects, invite them thus to gather it, either to put their pollen in contact with the stigma in the same flower, or to carry this pollen to a distance to fecundate another flower; and thus effect a cross-fertilization. For Sprengel, Darwin, Hildebrand, Delpino, Hermann Muller and J. Lubbock say that this is the reciprocal adaptation between flowers and insects.

"Not only," says Lubbock, "the form and colors, the brilliant shades, the sweet fragrance, and the honey of the flowers have undergone a gradual unfolding through the unconscious selection exercised by the insects; but the arrangement of the colors themselves, the circular bands, the radial lines, the shapes, the size and the location of the petals, the relative position of the stamens, and the pistil are all disposed for the visits of the insects, and in order to insure the chief end of these visits."

The following quotation from Darwin shows how much importance the new school attaches to the part played by insects, and especially hymenoptera, in the fertilization of flowers: "We can suppose that the plant, the nectar of which we have seen increasing slowly in consequence of a continued selection, is a common plant, and that certain insects largely depend upon its nectar for their nourishment. I could prove, by numerous examples, how bees waste as little as they can of their time. I would point to their incisions at the basis of certain flowers to reach their nectar, when, with a little more pains, they could have got in through the top of the corolla. If these parts are kept in remembrance, it becomes easy to believe that, under certain circumstances, individual differences in the curve or the length of the trunk, although too insignificant for our appreciation, may be of use to the bee or any other insect; that some individuals would be more able than others to procure their food, and that the families to which they belong would in consequence obtain a quicker development, and produce more swarms inheriting the same peculiarities. The tubes of the corollas of the common red clover, and of the incarnate clover (*Trifolium pratens* and *T. incarnatum*), do not appear at first sight to differ in length; and yet the domestic bee easily reaches the nectar of the incarnate clover, but not that of the red, which is only visited by the drones; so that whole fields of red clover offer in vain, to the bee, an abundant harvest of the precious nectar. It is very fond of it, for I have often seen, but only in the fall, many bees suck the flowers through holes made by drones at base of tube.

"The difference in the length of the corollas of both species of clover must be very slight; and yet it is sufficent to cause the bees to visit one flower in preference to another. Moreover, it is affirmed that the flowers of the red clover of the second crop being smaller, the bees visit them. Neither do I know the truth of another assertion recently published, that the Ligurian bee, which is ordinarily considered simply as a variety of the domestic bee, and which is often crossed with it, can reach and suck the nectar of red clover. Whatever it may be, it would be a great benefit for the domestic bee in a country where this clover abounds, were its trunk a little longer, differently constructed on the other side, as the fertilization of the plant absolutely depends upon the visit of the bees, it would be much advantaged, should drones become rare, were its corolla shorter or more deeply divided, in order that the bee could suck its flowers; hence, it is easy to understand how it happens that a flower and an insect may slowly, though simultaneously, one following the other, undergo in the most perfect manner a mutual modification and adaptation by the continued preservation of all the individuals presenting slight deviations of structure advantageous for one and the other.

"Here is another instance which will illustrate the complicated relations that bind together plants and animals so distant from each other in nature's scale. Insects, in my garden, never visit the *Lobelia fulgens*, an exotic plant, and that, as a consequence, on account of its peculiar conformation, this plant never produces seed. It is absolutely necessary for the fertilization of our orchidæ that they be visited by insects which carry the pollen from one flower to another. After numerous experiments, I have ascertained that the drone is almost indispensable for the fertilization of the pansy (*Viola tricolor*), because the other insects of the bee-family do not visit this flower. I have also ascertained that several species of clover cannot be fertilized without the visits of bees; 20 heads of Holland clover (*Trifolium repens*) for instance, have produced 2,290 seeds, while 20 other heads, which bees could not approach, have not produced one. The drone alone visits red clover, because the other bees cannot reach the nectar. It is said that Phalence can fecundate red clover; but I must doubt it, because the weight of their bodies is not sufficient to press down the petals. We can, therefore, consider it as very probable that if drones were to disappear or to become very rare in England, both pansy and red clover would also become very rare or disappear entirely."

Summing up the doctrine, Mr. Sachs writes: "Insects are the unwitting and unconscious agents of pollenization; they only visit flowers for the nectar which is their food, and which is only distilled for this purpose." Gorging themselves with pollen, they fly from flower to flower, rolling themselves in the corollas to gather the fertilizing dust which, fastening itself to their hair, so covers and disguises them sometimes as to make it difficult to recognize them.

Says Huber: "I have seen drones try in vain to reach the honey contained in bean-flowers; the large size of their heads and of their waists hindered them from entering far enough into the long tubes of these flowers; they would then turn straight to the calyx, and pierce it as well as the tube, with the scaly part of their trunk, which, penetrating the centre of the flower, would reach the nectaries, and bring out the honey with which they were filled. At the same time, other drones less in size, or with trunks longer, would enter the corolla, penetrate into the tube, and reach the honey without any trouble."

Du Petit Thonars has also observed that the drones and the "*abeille solitaire*" (*Xylocopa violacea*) thus violently gather the nectar of the "*Linaire*" (*Linaria vulgaris*), of the "*gueole de loup*" (*Anthirrinum majus*), of the "*Belle de miet*" (*Mirabilis jalapa*). Kirby has often seen that the long honey receptacles of the aniolies (*Aquilegia vulgaris*) were perforated. Other observations have followed. Many other entomologists and botanists have watched the drones at work piercing the calyxes or the corollas of many plants. We have often observed them ourselves; and it is indeed a marvellous sight to witness their excitement, when they find themselves confronting, for instance, a closed flower like the consonde (*symphytum officinale*); it is only after they have assured themselves that they cannot obtain a direct entrance to the nectaries that they resort to the piercing process, and, the opening once made, bees crowd after them for their share of the honey—the crumbs of the table—for which they insert their tongues into the holes made for them by the noisy drones."—KURCHEL.

Exchange.

Experiments—Bloom Fertilization.

Prof. Beal, of the Michigan Agricultural College, has been conducting experiments for six years with humble-bees and red clover. The sixth experiment during 1882, he describes as follows: Two fine bunches of the first clover crop, apparently alike, were both covered with mosquito netting. No insects were seen about either, except what are mentioned below. On June 29 a bumble-bee was placed inside of one netting and seen to work on the flowers; July 10 two more were introduced and seen to work; on the 12th more were put in and observed. On July 31, fifty ripe heads were selected from each plant and the seeds carefully counted. The fifty heads on the plants where bees were excluded yielded 25 seeds. The fifty heads on the plant where the bumble-bees were inserted under the muslin and seen to work, yielded 92 seeds. This is nearly four times as many as were produced by heads where the bees were excluded. In all

instances, the heads were seen to be unopened when they were covered with muslin or paper sacks. In the last experiment as well as in the others, perhaps the bees did not visit all the flowers. Insects, even in the most favorable seasons, are not always to be relied on to transfer pollen enough to fertilize all the pistils.

Prof. W. W. Tracy has found in several seasons, where he has raised Hubbard squashes on a large scale, that he increased his crop of fruit quite largely by artificially transferring pollen with his own hand, every day or two, during flowering. To see how the uncovered heads of red clover from different plants varied in the number of seeds produced, I selected fifty heads from five plants near each other, where each had plenty of room. This was the second crop of clover. Fifty heads from each plant yielded as follows: 1,260, 1,275, 1,460, 1,485, 1,820 seeds respectively. In another place, fifty heads yielded 2,290 seeds, or nearly twice as many as plant number one in the lots just above noticed. It is a fair conclusion that bumble-bees are of considerable value in fertilizing the flowers of red clover.

From the British Bee Journal.

Visits of Insects to Flowers.

Lecture by J. T. Powell, Esq.

The lecturer showed what an important work was carried on by insects in the fertilization of flowers. The subject of the mutual relations of insects and flowers was, he said, a comparatively new one, and it was only within the last quarter of a century that due attention had been given to it. He explained, by means of diagrams, the structure of flowers, and went on to deal with their fertilization by means of pollen. Cross-fertilization was effected in two ways, either by the agency of the wind or insects. Plants which were cross-fertilized, as a rule, produced better than those which were self-fertilized. The relative position of the stamen and pistil in some flowers rendered self-fertilization impossible, and in these cases if it were not for cross-fertilization the species would die out. Wind-fertilized flowers are usually deficient in brightness; those fertilized by insects are generally brilliant. Some were of the opinion that insects had no sense of smell, but, however that might be—and it was a subject on which they knew very little—he, for his part, believed that insects were attracted by odors. The great attraction which flowers had for insects, was the sweet juice in the nectaries known as honey.

The lecturer proceeded to show that in passing from flower to flower the insect conveyed pollen on its feet, and this pollen was rubbed off. While the bee or other insect was suiting its own purpose by taking the honey, it was also transferring the fertilizing pollen. To female insects, particularly bees, which were the chief means of conveying the pollen, the pollen itself was an attraction, and their instruments for brushing it up and carrying it away had often been described. He explained the *modus operandi* of bees in visiting certain flowers, giving minute information as to the transference of the pollen. In some instances, he showed that it was necessary before fertilization could take place, that the bee should literally force itself into the flower. This was the case with the snap-dragon flower. In other cases not only was the strength of the insect a factor, but the weight also. He then explained the construction of the sweet pea, and showed that, but for the weight of the bee having a mechanical effect in bearing down a portion of the flower, fertilization could not take place. Hive and humble-bees were the usual visitors to the leguminous family, and without the intervention of the bees, we should get no fruit from the kidney beans. It had been found that, by keeping bees away from kidney beans, the flowers did not set.

Referring to the orchids in the diagrams, he said there were 18 ways in which they could be fertilized; but Darwin said there were only 6 ways in which they could be fertilized with advantage. The fertilization of the flowers of the orchid family would always be associated with the name of Darwin. Night moths visited some of the orchids, which could not be fertilized except by insects with very long tongues. The pollen-masses stuck to them, and were thus conveyed to other flowers. Mr. Darwin found a moth with a pollen-mass sticking in its eye; and an entomologist caught a moth at Dover and sent it to him (the lecturer) with over 20 pollen-masses sticking to its tongue, so that it must have been pretty much embarrassed thereby, as it was not able to coil its tongue up in the usual manner. Garden sage sometimes produced flowers, which were rather large, bright blue in color, and thin-lipped. In this family the older flowers were fertilized from the younger ones.

Mr. Powell then went on to show that the constancy of insects is of considerable importance in fertilization, that was to say, whether they stuck to the same sort of flowers in the same journey. In the hot July of 1881, he watched the insects at Cromer, and one result of his investigation was that bees, as a rule, were very constant, and butterflies very inconstant. The hive-bee was the most constant of bees. He found that sometimes the inconstancy was only seeming, as the bee would leave a flower and go to another simply for the purpose of moistening its throat, and would then return. Some flowers were entirely fertilized by nocturnal moths, among them being the red valerian. This flower was fertilized by a moth with a tongue an inch and a quarter long. Only a few British flowers were adapted to fertilization by wasps, which had short tongues. All the flowers so fertilized were very shallow and dull-colored, and the wasps were left by other insects in undisturbed possession of those which they could conveniently visit.

For the American Bee Journal.

Defending the Rights of Apiarists.

G. W. DEMAREE.

The suit for damages against Mr. S. I. Freeborn, of Ithaca, Wis., having been made public, I wish to endorse Mr. Heddon's suggestions as to the propriety of organizing a mutual defense society. But I see no necessity of creating a "sinking fund" to aid those whose rights may be assailed. It will be sufficient to have a general manager who can act as secretary and treasurer. And when a bee-keeper needs support in making defense of rights common to the bee-keeping interest, a "call" can be made on the members for the necessary funds to meet the emergency. Mr. T. G. Newman is the proper person to hold the important position.

If Mr. Newman would indicate through the columns of his paper, his readiness to assume the leadership of such organization, and would "open books" for membership, I am sure that he would meet with hearty responses. Of course it will be some burden to Mr. Newman, but he has already done a great deal of work for the "glory of the thing," and doubtless can stand a little more. It is proper here to say that it is natural that a prudent person joining such society would want to know the extent of his liability.

I would suggest that each person, when sending in his name, indicate what sum he would be willing to pay at a single "call," say one or two dollars, or any other sum, and when the average is taken, let that be the highest amount that any member would be liable for at any one "call."

I believe that it would have been better to have kept this ridiculous damage suit in the back grounds. If it gets into the newspapers it may do a worse work for the interest of bee-culture than the "scientific pleasantry" of Prof. Wiley has inflicted. The first impulse of the bee-keeper would be to look with contempt on such a "plea" as the plaintiff in the damage suit against Mr. Freeborn must make, yea, and swear to, in order to satisfy a court that he has a "cause of action" against the defendant. But the marvellous ignorance and stupidity that is abroad concerning the habits and instincts of the honey-bee makes the matter more serious than funny. Think of submitting your rights as a bee-keeper, to a man whose features become the personification of aversion at the sight of a honey-bee, and who will strike most wickedly at a tired, inoffensive bee that may chance to light on his clothes! Would it be a difficult matter to persuade such a man that bees will pursue and sting sheep in a pasture?

The rights of bee-keepers ought to, and must be maintained right at the start. We cannot afford to yield an inch of ground. Once admit that bees are likely to injure stock in the fields, and that is the end of bee-culture. Let Mr. Freeborn fail to make

a successful defense, and that will insure more trouble in the near future.

I have no doubt but every bee-keeper will feel it his duty, yea a privilege, to cast in his mite, when necessary to preserve our common rights.

Christiansburg, ♂ Ky.

For the American Bee Journal.

Importance of Defense Organizations

FRANK M'NAY.

I hope that every reader of the BEE JOURNAL has read the two articles on page 346. I have no more interest in this case than every bee-keeper should have, and I had had no acquaintance with Mr. Freeborn (although we are located only 40 miles apart) until I heard of his trouble last fall, when I went to see him, and enjoyed a very pleasant visit with him.

Mr. Freeborn is one of the pioneer bee-keepers of Wisconsin, and has given instructions to many who are now among our best apiarists; and were it not for poor health, I doubt not that he would now honor the occupation of bee-keeping by giving this case such a defense as would teach all that bees instead of a detriment are of great service to agriculture.

I think the plan proposed by Mr. Heddon is a good one, and he deserves thanks for his able article on this subjec. We need some one to take the management of organizing at once, and Mr. Heddon has named Mr. Newman. I think that the choice will be unanimous, and I hope that he will use his best efforts to organize a bee-keepers' defense organization. I would suggest that Mr. Newman publish a call for signers, with the understanding that the managers shall have the right to assess the members for necessary funds, as soon as the organization is large enough to have the required strength. There are many reasons for forming an organization. I think that if Mr. Newman had had 1,000 or more bee-keepers to defend him, he could have taught Prof. Wiley the folly of telling "scientific lies."

Mauston, ⊙ Wis.

For the American Bee Journal.

Expecting a Bountiful Harvest, etc.

EUGENE SECOR.

The season has opened propitiously in northern Iowa. It is now only about six weeks since the bees were removed from their prison-house or cellars, and now they are storing honey in supers, "laying out" and swarming. From the latter part of April the honey-flow has been constant and abundant. Beginning with the willow and poplar and ending with fruit-bloom, there has been a succession of honey-flowers that made glad the hearts of enthusiastic bee-keepers. One will be surprised at the number of honey-producing trees, shrubs and plants here when he begins to take note of them. White clover is now coming on nicely, and if it yields nectar as did the flowers preceding it, we shall expect a bountiful surplus.

If our pitchers are right side up this summer, I believe that they will be filled. My observation is that too many bee-keepers let a part, and sometimes the best part, of the honey season go by before they put on the boxes, even when their bees are strong enough to go right into them. We cannot wait until July and then get a remarkable crop.

AN ADVISORY BOARD SUGGESTED.

In regard to the suggestions offered on page 346, by Mr. Heddon, I would say that in my opinion there ought to be an advisory board of three to disburse that defense fund; for "in a multitude of counsels there is wisdom." It would give better satisfaction to the subscribers to the fund, and relieve the secretary from some responsibility. Before aiding any bee-keeper, the board ought to have a voice in saying what attorneys should be employed to defend him, as every one-horse, cross-road pettifogger is not capable of managing such cases; nor is it every case that might arise that ought to be defended—only those wherein are involved general principles.

This board should use its discretion in those matters, and if some of our ablest and best-known bee-keepers were that advisory board, we should feel secure; not that we lack confidence in the Editor of the BEE JOURNAL, but we think he would feel better to have some good company to help bear the responsibility. My dollar is ready when wanted.

Forest City, ♂ Iowa, June 8, 1885.

For the American Bee Journal.

Defense Organizations and Funds.

S. H. MALLORY.

I think that the suggestion offered by Mr. Heddon, on page 346, in regard to organizing and raising a defense fund, is a good one. It will do good in various ways, not only in helping bee-keepers to defend their rights when trespassed upon, without heavy individual outlay, but if black-mailers and Shylocks know that we are organized and able to defend ourselves, they will fight shy of us.

We have tested the value of organization here in Michigan several times, first, in what was called "the slide-gate swindle," and next, in the "drive well suits." In both cases the agents of so-called patentees were scattered all over the State collecting royalty from farmers and others with impunity. Individuals were threatened with a lawsuit if they refused to pay on demand, and rather than stand the chances of being sued in the United States court, perhaps a hundred miles away, they would pay the royalty; and thousands of dollars were collected in that way. Finally, the Grange Organization raised a defense fund and proposed to fight Mr. Patent-right-man. After that no more royalty was collected, and they soon got all the law they wanted, and the whole thing collapsed, thereby saving thousands of dollars by being organized and showing a bold front.

If all bee-keepers who wish to come into this mutual protection society, would contribute, say one dollar, to the fund and place it in the hands of one who could be implicitly trusted, and who had the energy and wisdom to use it so as to do the fraternity the most good, I believe it would be an act of wisdom on the part of bee-keepers to do so. Each contributor should have a receipt from the treasurer stating the purpose for which the money was contributed, and if thought best the surplus, if any remained after this impending suit is over, could be returned to the contributors by the society so voting, or otherwise disposing of it. At any rate let us raise the fund, and help defend this fellow-bee-keeper who is in trouble; thereby, perhaps, preventing future annoyance to others of the fraternity.

Decatur, ♀ Mich.

For the American Bee Journal.

Cause of Bee-Diarrhea, etc.

GEO. B. PETERS.

I have noticed from time to time a discussion of the theory advanced by Mr. James Heddon, of the cause of bee-diarrhea among bees in winter. Whilst we know a man's faith by his works, we cannot know one's faith without his works. I only know Mr. Heddon by his zeal and devotion to the interest of bee-keeping, by his frank and candid manner in stating his convictions, and by his many useful suggestions to advance apiculture. But I think that the ardor of his nature has led him into an egregious error as to the cause of bee-diarrhea. It is conceded by everybody that a thousand negatives will not disprove one positive fact. I state now, on the honor of an old bee-keeper, to that class of men engaged as such, that I have kept bees for over 60 years, and I have always watched with great interest any deviation from a normal condition of my colonies in winter as well as in the honey season, and I have never yet seen a case of that disease among bees. This country is the one notorious for the pabulum of bee-life, and many seasons remarkable for the honey harvest.

In this country there is more pollen or bee-bread gathered than in any other country under the sun, I suppose; and here no one pretends to take his colonies from their summer stands, and few even provide a shelter of boards. I have seen colonies live through the severest winters with large crevices in the hives and without any shelter, go through all right and swarm early in March. I have taken a single colony, and by subdivision increased it to 32 by the middle of August, and in another month I could have doubled it; but then the latest would have required feeding. This is an evidence of the great amount of bee-bread collected; and

the natural habitudes of the bee not being interrupted, our colonies go through the winter safe and free from disease.

It is true an adventurer comes down here once in awhile, buys out an apiary, extracts all the honey, even up to frost, and relying upon artificial feeding, by his neglect of the office, loses many colonies. But to leave the brood-chamber unmolested with all its stores, ninety-nine in every hundred will go through the winter sound and in good condition. Then the cause is as clear as the noon-day sun, of that fatal malady among bees in the North; that cause was clearly set forth by one of the correspondents of the BEE JOURNAL for May 27—to-wit, long winters and no flights. Here with us we scarcely ever have a cold snap lasting over two weeks at a time. Our bees take a flight at least once a fortnight, and generally in half that time, and having a plentiful supply of their natural food, viz., honey, and I think bee-bread as a relish, they come out strong, without spring dwindling, and swarm in April, and sometimes in March.

I do not think that Mr. Heddon will surrender, as he is a little obstinate in his peculiar views, which, by the way, judging from his works, is a trait that gives him his individuality, and, therefore, he will not agree with us who oppose his views; but there is one ground, I think, where we will all meet, that is, in defense of our Wisconsin bee-keeper, in that outrageous suit brought against him through malicious selfishness. I second the motion to nominate Mr. T. G. Newman as the secretary and treasurer of a defense association, and I will remit, when deemed necessary—let it be one dollar apiece or five, I am there. We should defend the friend of the bee-industry in any part of our vast country where he is wronged and opposed without cause and clearly with "malice aforethought."

Peters, Ark.

Western Plowman.

Timely Hints for June.

C. H. DIBBERN.

June is the busiest month in the year for the bees and the apiarist. During this month, and the first half of the next, we should reap the golden harvest for which we have waited so patiently during the stormy months of winter, and for which we have worked all the spring. As the season is very cold and backward, the main honey season will probably occur between June 15 and July 15.

As only strong colonies can be depended upon, it is very important to have every hive full of workers at the right time. I am well aware that this is not an easy matter, in this changeable climate, where the thermometer is liable to drop 40° in a single day. For this reason I am not much in favor of spreading the brood, and placing empty worker comb in the centre, for the queen to fill with eggs, till settled warm weather can be depended upon. The important point is to have the bees just at the right time, and to attain this the apiarist must use a great deal of judgment.

Some sections should be placed on the hives with the appearance of the first white clover blossoms. Those hives, so arranged that a few can be put on at a time, are better than where all are put on at once. If too much room is given it will greatly reduce the temperature of the hive, and bees will be slow to commence in the supers. Sections should have either pieces of nice white comb or thin foundation fastened in them, to start the bees to build straight combs in the sections. If large sections are used, they should also be divided by separators of tin or wood.

See to it that your hives are level, the way the sections are placed, or the combs will not be built straight. Place more sections on as fast as the bees commence working in them; remove them as fast as the few cells are capped, and if the honey-flow continues, put on empty sections in their place. Care should be taken not to have too many partly-filled sections, when the honey season is over; better crowd the bees into fewer sections, and get nearly all finished.

This, too, is the swarming month, and will keep the bee-keeper busy, and give him something to think about. Of course hives should be at hand, all ready for the bees. If comb or foundation is not used in the brood-frames, then a sharp edge must be given them for a comb guide. I think it pays to use full sheets of foundation in the brood-frames, as nice, straight combs are thus secured, and all drone-comb is thus avoided.

When a swarm issues wait quietly till the bees settle on some branch or other convenient place. If any are afraid of getting stung, have a bee-veil; and if you have a pair of rubber gloves use them, too, if you wish. Put your hive at a convenient place, spread a sheet in front of it, see that the frames are evenly spaced, and close up the hive and shake the bees in front, when they will readily enter the hive. Should they cluster on the outside, take a small stick and scrape them down. As soon as about all have gone in, put them to place and mark the date of the swarm on the hive, and also mark the hive of the colony that has swarmed. In about 6 to 8 days the old hive is almost certain to send out a second swarm; this should be returned after cutting out all the remaining queen-cells. A better plan, however, is to place the first swarm on the stand occupied by the old colony at the time the first swarm issues, removing the surplus arrangement to the new colony, and removing the colony to a new location. In this way the old colony will lose nearly all working bees, and will not be so likely to swarm again; but if it should, they ought to be returned as before described.

Comb honey, as fast as taken off, should be stored in a dry, warm place, where it is not exposed to bees and flies. It will not do to put it into the cellar, as it attracts dampness, and its beautiful appearance is soon spoiled, and it is liable to sour and spoil. It is only by having our honey in the nicest possible shape that we can hope to meet all competition in the market.

Milan, Ills.

For the American Bee Journal.

Do Bees Really Annoy Sheep?

D. MILLARD.

It was with much interest that I read the articles from Messrs. Freeborn and Heddon, on page 346, relative to bees doing damage to sheep while pasturing. I, as well as nearly all land-owners in this vicinity, keep both bees and sheep, and I have long known that sheep, by their extremely close biting, would nearly if not quite ruin the growth of white clover, for bee-pasturage; but that bees should annoy and drive sheep from their pasture is news to me. In the first place, bees never attack anything while gathering honey; and in the second place, sheep are so well protected by nature, even their very eyes being imbedded in wool, as to make them indifferent to the attack of even *Apis dorsata*.

Nevertheless sheep have their much-dreaded enemies. Mr. Morrell, in the *American Shepherd*, says: "Sheep, during the summer months, are subjected to extreme annoyance from flies, principally the gad-fly, and several varieties of worm or maggot flies. The insect passing under the name of fly, though the most troublesome in August, attacks the sheep from May to September. The gad-fly deposits its eggs on the margin of the sheep's notrils, these are soon hatched, and the larvæ immediately find their way up the interior of the nose till they arrive at the frontal *sinus*, a cavity situated between the layers of the frontal bone and of considerable size in the sheep. Here they remain until the following spring, when they burrow quite into the earth for a short season; then become winged insects, and ready to enter upon their career of torment so ably gone through with by their predecessors."

The above may seem rather "sheepish" for a bee-argument, but I quote it to show the possibility of one's being mistaken in regard to sheep being tormented by bees. A little careful observation will convince any candid mind that there is no trouble between the bees and the sheep; for, who has not observed, during hot weather (and this is the time when the flowers secrete their nectar), as the sun climbs the eastern horizon and casts its lurid glare over the fields, the sheep leave their pasture, and with their noses to the earth, seek shelter frequently under the sides of logs, in fence-corners, etc., while the busy bee takes possession of the field and improves each shining hour; and in turn, as the sun recedes, the bee repairs to its hum in the hive, while the sheep again come out and improve the twilight and early evening hours to supply their natural wants.

No, fellow-bee-keepers, the trouble is not between the bees and the sheep, but between the sheep and their owners, who fail to provide cool, dark sheds with water convenient for their sheep during the heat of the day, which results in the death of thousands annually during the late winter and spring months, with the disease known as "grub in the head."

In the above I have taken middle ground, as the bees' side of the question—its usefulness as an agent in fertilizing flowers, etc., has already been so plainly shown to the reading public, by scientific investigators of the last few years, that for any one to doubt would be simply to show ignorance.

Mendon, ♀ Mich.

SELECTIONS FROM OUR LETTER BOX

Good Season Anticipated.—C. H. Dibbern, Milan, ☜ Ills., on June 4, 1885, says:

Bees are doing finely now, and I look forward to a good season in this section.

White Clover in Abundance.—J. W. Sanders, Le Grand, ⊙ Iowa, on June 8, 1885, says:

The season has been quite late here, and from the best I can learn, a number of bee-keepers have lost heavily by spring dwindling. But bee-keepers' faces begin to brighten now, as the white clover is commencing to bloom, and as we have a large quantity of it.

Colonies Strong, but No Swarms.—Wm. Anderson, Sherman, ☜ Mo., on June 8, 1885, writes thus:

My bees are doing well, except that they do not swarm. The hives are full of bees—so full that they cannot get in, I notice. A shower came up and the bees were unable to go into the hives, as they were so full. Although I have had 5 swarms this season, the bees hang on the sides of the hives in great bunches; some of them would make a good colony if they were in a hive and put to work. There is plenty of honey coming, and the prospect seems good. White clover is in abundance. Swarming is the only drawback now.

Working Night and Day.—Geo. W. Riker, Russell, ♀ Iowa, on June 8, 1885, writes:

My bees work day and night for seven days in a week, and I am unable to find any of them idle or resting, hence, I conclude that they never sleep. Perhaps some of the more experienced can tell me how I may be able to catch a bee asleep.

Removing Pollen from Combs.—6—John Crawford, (45), Pleasant, ☜ Ind., on June 6, 1885, gives his method as follows:

I notice on page 340 a query on removing pollen from combs. I have been thinking and experimenting for sometime on that point, and I have tried giving the combs to colonies, but the bees would very seldom remove enough to amount to anything. I never tried melting the combs, but I have no doubt that would be successful, but rather expensive. After experimenting considerably, I finally set the combs upright in water, and let them stay in it for 5 or 6 days, when the pollen becomes very soft, and then by attaching a hose to a force pump with a sprinkling nozzle (an ordinary nozzle would damage some of the cells), every particle of the pollen that has been in the water will be washed right out (if it is not covered with honey and capped over). I have put such combs in the centre of the brood-chamber, and had them filled with eggs in 24 hours, and I do not think that any one could tell that they ever had pollen in them. A convention was held in Madison, Ind., on May 28, and I was intending to take over a frame with eggs in, that I had washed the pollen out of, but just at that time I had to attend to the bees. I should have stated that I extracted the water before putting the combs into the hive.

Protecting Bee-Keepers.—Chas. H. Green, Berlin, ⊙ Wis., on June 10, 1885, says:

In response to the suggestions made by Mr. Heddon, on page 346, in regard to a defense organization for the purpose of protecting bee-keepers against injustice at law, I would say that I have for some time thought a society of this kind would sooner or later be needed, and the time has now come. I am glad that Mr. Heddon has made a start, and I would second the nomination of Mr. T. G. Newman as secretary and treasurer; and I would suggest that Mr. James Heddon and Dr. C. C. Miller assist him in forming and managing the affair. My fee is ready. I hope that every bee-keeper in the West will respond with his dollar.

Bees Molesting Farm-Stock.—John Rey, East Saginaw, ⊙ Mich., on June 5, 1885, writes as follows:

I notice on page 346, that Mr. Freeborn, of Ithaca, Wis., has gotten into some trouble on account of his bees going into his neighbor's pasture and driving out the sheep. I have never known or heard that bees could drive sheep or cattle; but if this is the case, bees can do more than build combs and store honey for man. I do not see what harm the bees in question did to the neighbor's clover field, only to sip the God-given sweets which would otherwise have been lost. Mr. James Heddon has made a good move in the direction of the bee-keeper's interest. Mr. Editor, you can put me down for $1. I think that every bee-keeper can afford at least $1 toward a good cause, remembering that "in union there is strength." I am sure that every bee-keeper who likes his bees, and respects his fellow-bee-keepers, will not let this case go by unnoticed; and I think that every one will come to the front with his dollar in hand when it is needed.

The Duty of the Hour.—James B. Mason, Mechanic Falls, ♀ Maine, on June 9, 1885, writes as follows:

While looking over the last BEE JOURNAL, I noticed the article from James Heddon, and while reading it I was thrilled with joy, and exclaimed "Just the thing!" I have long thought of some plan that would more closely bind bee-keepers together, not crush down any one, as Mrs. Lizzie Cotton says the bee-associations are a band of men banded together to crush her down just because she is a woman, but to protect bee-keepers against the unjust charges that are being heaped upon them. I believe that the course mapped out by Mr. Heddon is a move in the right direction, and that it will tend to draw bee-keepers together, and I think it is the duty of every bee-keeper in the land to rally to the front at once. It seems to me that every bee-keeper in the country can see that it is not only his privilege, but his duty to at once take hold of this matter, and not only himself, but work hard to induce others to do the same. This is a matter that calls for immediate action, and let us arise and say, "United we stand;" and our rights must be respected as well as those in other occupations. Mr. Heddon has led off by proposing for manager our esteemed and tried friend, Mr. T. G. Newman, who has ever proved himself fearless and ready to stand up for the right against the wrong, and I heartly second the motion, believing that he will be "the right man in the right place." My dollar is ready.

Law Against Keeping Bees, etc.—Chas. Follett, Osage, ♂ Iowa, on June 9, 1885, writes as follows:

I have read the articles on page 346, in reference to the suit involving bees. I have never known bees to molest anything while they were out at work, but as a rule, they attend strictly to their own work. If there is any law against keeping bees, I think that it is time that such law is made manifest. As there are so many interested in bee-culture, it will cost but a small amount for each bee-keeper to assist in defending the suit in question. I fail to see that there is any case at all; however, I am ready and willing to contribute my part, and then see how we will come out. We surely can procure just as good lawyers as the plaintiff has, and soon settle the matter. The past winter was a hard one on bees in this section. I lost 50 colonies out of 130. I think that the loss in this county is about ¾; some have lost all. My bees are now in good condition, and are preparing for the honey harvest. Everything looks favorable.

Bees Packed in Chaff.—Dr. J. S. McAllister, Columbus, ☜ Nebr., on June 6, 1885, writes:

Spring was late here as well as elsewhere. Being short of help last summer and fall, I put 20 colonies were not packed with chaff as usual, but left to the mercy of the cold, and consequently I lost 14 of the 20, and the other 6 were very weak in the spring. They were all pure Italians, and very heavy, with 12 to 16 frames, of the American size, to the hive, being crowded with bees. About 40 other colonies in hives of the same style, but not quite so well packed with chaff (and on the summer stands, the same as the other 20), wintered nicely, and are doing much better. I have been so busy at my profession that my bees have been sadly neglected.

Method of Transferring for Ladies and Beginners.—Mrs. E. J. Baxter, Nauvoo, ☜ Ills., on May 27, 1885, writes as follows:

I have just read what Mr. O. Clute says about transferring bees, on page 330; and though I am not one of those whom he addresses, I wish to state that we have transferred a number of colonies by the "driving plan," and that we have succeeded pretty well each time. The transferring was done when the weather was warm enough to allow the brood to hatch well; therefore it did not die and decay. However, in the early spring months we prefer the old-fashioned method, as we had to spend more time in feeding our "driven" colonies than we would have spent, had we transferred combs and all. The "driving plan" is a good one for ladies, as it requires but little handling of tools; it is a good one for beginners, as it requires but few directions.

Local Convention Directory.

1885. *Time and place of Meeting.*

June 19.—Willamette Valley, at La Fayette, Oreg.
E. J. Hadley, Sec.

July 15.—Central Illinois, at Bloomington, Ills.
Wm. B. Lawrence, Sec.

Dec. 8—10.—Michigan State, at Detroit, Mich.
H. D. Cutting, Sec., Clinton, Mich.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

Honey and Beeswax Market.

Office of the AMERICAN BEE JOURNAL,
Monday, 10 a. m., June 15, 1885.

The following are the latest quotations for honey and beeswax received up to this hour:

CHICAGO.

HONEY.—Demand is light and receipts are also light. Prices range from 10@15c. for best grades of comb honey, and for extracted, 5@7c.
BEESWAX—22@25c.
R. A. BURNETT, 161 South Water St.

BOSTON.

HONEY.—We qupte the following prices: Fancy white comb in 1-lb. sections, 16@18c.; the same in 2-lb. sections, 15@16c; fancy white California 2-lbs., 12@14c. Extracted weak, 6@8c. Sales very slow.
BEESWAX.—32 cts. per lb.
BLAKE & RIPLEY, 57 Chatham Street.

NEW YORK.

HONEY—We quote: Fancy white clover in 1-lb sections, 14@15c; fair to good white clover in 1-lb. sections, 12@13c; fancy white clover in 2-lb. sections, 13@14c; fair to good white clover in 2-lb. sections, 11@12c; fancy buckwheat in 1-lb. sections, 9@10c; fancy buckwheat in 2-lb. sections, 7@8c. Ordinary grades, no sale. Extracted white clover, 7@8c; extracted buckwheat, 6@6½c.
BEESWAX—Prime yellow, 26@29c.
MCCAUL & HILDRETH BROS., 34 Hudson St.

CINCINNATI.

HONEY—There is no new feature in the market. Our regular customers only are buyers at present. There is almost no outside demand, and low figures are no inducement. We quote extracted honey from 5@8c on arrival, and comb at 9@12c.
BEESWAX—Good demand and arrivals plentiful. We quote 24@28c for good yellow on arrival.
C. F. MUTH, Freeman & Central Ave.

SAN FRANCISCO.

HONEY—Market very quiet. Choice extracted is the only kind which buyers at present care to purchase in a wholesale way, and there is little of this sort offering. No new crop honey has yet arrived; none expected for several weeks. White to extra white comb, 8@9c; dark to good, 4@7c; extracted, choice to extra white, 4½@5½c; amber colored, 4½@4¾c.
BEESWAX—Quotable at 25@32c—wholesale.
O. B. SMITH & Co., 423 Front Street.

CLEVELAND.

HONEY—Since our last report there has been a little better demand for honey, and some sales have been made at 13½@14c for best white honey in 1-lb. sections. Second quality is still very dull at 12@13c. Extracted is not salable at any price in our market.
BEESWAX.—Scarce at 28@30.
A. C. KENDEL, 115 Ontario Street.

KANSAS CITY.

HONEY—Demand is light and prices weak. We quote choice ½-lb. sections, 15@16c; 1-lb., 13@14c; 2-lb., 10@11c. Extracted, 5@6c, according to quality. Half-pound sections of comb honey are in demand.
BEESWAX—25@30c.
CLEMONS, CLOON & Co., cor. 4th & Walnut.

☞ **Sample Copies** of the BEE JOURNAL will be sent FREE upon application. Any one intending to get up a club can have sample copies sent to the persons they desire to interview by sending the names to this office.

☞ We want one number each of the BEE JOURNAL of August, 1866—February, 1867. Any one having them to spare will please send a Postal Card. We will pay 50 cents for one copy of each of the two numbers.

Special Notices.

☞ For two subscribers for the Weekly BEE JOURNAL (or 8 for the Monthly) for one year, we will present a Pocket Dictionary, and send it by mail, postpaid.

☞ If your wrapper-label reads JUNE 85, please remember that your subscription runs out with this month. Renew at once, so as not to lose any numbers.

☞ Our rates for two or more copies of the book, "Bees and Honey," may be found on the Book List on the second page of this paper. Also wholesale rates on all books where they are purchased "to sell again."

The Post Office Clerk at Canajoharie, N. Y., has been arrested for robbing the mails at that place. Those who have been sending money to A. C. Nellis & Co., for seeds, and getting no returns therefor, will now understand the reason why.

Rev. W. F. Clarke has recently removed to Guelph, Ont., to which place his mail should now be directed, instead of Speedside, Ont., his former address.

☞ **Back Numbers.**—We can supply a few more of the back numbers to new subscribers. If any want them, they must be sent for soon, before they are all gone.

☞ **I am overwhelmed** with orders for bees, and cannot receive any more, except orders for Queens.
JAMES HEDDON, Dowagiac, Mich.

☞ **California Honey Plants.**—Mr. W. W. Bliss, Duarte, Los Angeles Co., Calif., has sent us a Photograph of seven of the principal honey plants of California, viz: Wild Hoarhound, Wild Buckwheat, Hybrid Sage (two specimens), White Sage, Black Sage, and Wild Alfalfa. The size of the photograph is 8x10 inches, and he will supply it at $1.00 each.

To Correspondents.—It would save us much trouble, if all would be particular to give their P. O. address and name, when writing to this office. We have several letters (some inclosing money) that have no name; many others having no Post-Office, County or State. Also, if you live near one post-office and get your mail at another, be sure to give the address we have on our list.

☞ To create Honey Markets in every village, town and city, wide-awake honey producers should get the Leaflets "Why Eat Honey" (only 50 cents per 100), or else the pamphlets on "Honey as Food and Medicine," and scatter them plentifully, and the result will be a DEMAND for all of their crops at remunerative prices. "Honey as Food and Medicine" are sold at the following prices:

Single copy, 5 cts.; per doz., 40 cts.; per hundred, $2.50. Five hundred will be sent postpaid for $10.00; or 1,000 for $15,00. On orders of 100 or more, we will print, if desired, on the cover-page, "Presented by," etc. (giving the name and address of the bee-keeper who scatters them).

How to Propagate and Grow Fruit, by Charles A. Green, contains over 50 illustrations and two colored fruit plates. A 64-page book, price 25 cents. For sale at this office.

Previous to the publication of this book, there was no work on the propagation of small and large fruits which could be purchased for less than $3.00, therefore the masses have been without a guide in this important branch of fruit-growing, and know very little about propagating. The price of the book places it within the reach of all. Further than this, the book gives the latest and most approved methods found in no other publication.

This book tells HOW TO PROPAGATE Strawberries, black raspberries, red raspberries, blackberries, currants, gooseberries, grapes, quince, peach, apricot, plum, cherry, pear and apple; also GENERAL RULES for propagation, with illustrations showing how to bud, how to graft, how to propagate from layers, stools, inarching, with full instructions for grafting the grape. It tells how to lay out a garden or fruit farm—how to plant, cultivate, trim, etc.

☞ All who intend to be systematic in their work in the apiary, should get a copy of the Apiary Register and commence to use it. The prices are as follows:

For	50 colonies (120 pages)	$1 00
"	100 colonies (220 pages)	1 25
"	200 colonies (420 pages)	1 50

The larger ones can be used for a few colonies, give room for an increase of numbers, and still keep the record all together in one book, and are therefore the most desirable.

☞ **Preserve your papers** for reference If you have not got a Binder we will mail you one for 75 cents, or you can have one FREE if you will send us 3 new yearly subscriptions for the BEE JOURNAL.

Advertisements.

BEES for SALE
after July 1st. Send for terms.
H. R. BOARDMAN, E. Townsend, Huron Co. Ohio.
24Atf

100 NEW BEE HIVES, all complete, for sale at 70 cents per hive. Also 200 hives that have had bees in; they have combs in. I will sell at the same price. Having lost my bees, I must sell the hives. Also 8-frame Langstroth hives.
P. HARTL, Beaver Dam, Dodge Co., Wis.
24A2t

CHOICE ITALIAN
Bees and Queens

I CAN FURNISH 2 FULL COLONIES of Choice Italian Bees in 8-frame Langstroth Hives at $10 each. They are bred up to the HIGHEST STANDARD of excellence for all the best points. They are gentle and GOOD WORKERS.
Also some Purely Tested ITALIAN QUEENS for sale at $3 each.
ALFRED H. NEWMAN,
923 West Madison Street, - CHICAGO, ILL.

New and Enlarged Edition
OF
BEES and HONEY,
OR THE
Management of an Apiary for Pleasure and Profit; by

THOMAS G. NEWMAN.

Editor of the Weekly Bee Journal.

925 West Madison Street, Chicago, Ill.

It contains 220 profusely illustrated pages, is "fully up with the times" in all the improvements and inventions in this rapidly developing pursuit, and presents the apiarist with everything that can aid in the successful management of the Honey-Bee, and at the same time produce the most honey in its best and most attractive condition.

PRICE—Bound in cloth, $1.00; in paper covers, 75 cents, postpaid.

☞ **A Liberal Discount to Dealers, by the Dozen or Hundred.**

☞ The Monthly BEE JOURNAL for a year and the bound book, "Bees and Honey," will be sent for $1.25.

Vandervort Foundation Mill.

6 Inch, Price, $25.00.

It makes the finest extra thin Foundation for comb honey. For Sale by

ALFRED H. NEWMAN.

923 West Madison Street, - CHICAGO, ILL.

DOOLITTLE.—For prices of his QUEENS see page 349 of BEE JOURNAL, or send for Circular. G. M. DOOLITTLE, Borodino, N. Y.
11E15t

EXCELSIOR
HONEY EXTRACTORS

In answer to frequent inquiries for Extractors carrying 3 and 4 Langstroth frames, I have concluded to adopt these two new sizes. The 3 frame basket is in a can of the same size and style as the 2 frame. The 4 frame basket is in the larger can, with the cone or metal standard for the basket to revolve upon, leaving room underneath the basket for 75 or 80 lbs. of honey. It will be complete, with covers, and in every way identical, except in size, with the $16.00 Extractor, 13x20, which is intended for any size of frame.

Excepting with the $8.00 Extractors, all the different styles have strainers over the canal leading to the honey gate, and movable sides in the Comb Baskets. The $8.00 and $10.00 Extractors have no covers.

For 2 American frames,	13x13 inches		$8 00
For 2 Langstroth	"	10x18 "	8 00
For 3 "	"	10x18 "	10 00
For 4 "	"	10x18 "	14 00
For 2 frames of any size,		13x20 "	12 00
For 3 "	"	13x20 "	12 00
For 4 "	"	13x20 "	16 00

ALFRED H. NEWMAN,

923 West Madison St., CHICAGO, ILL.

Dadant's Foundation Factory, wholesale and retail. See Advertisement in another column.

IMPORTED QUEENS!

Read my Circular before ordering any Imported Queens from Europe. Address,

23Atf **HENRY ALLEY, Wenham, Mass.**

Bee Hives
AND
SECTIONS.

NEW SHOP AND NEW MACHINERY!!

The Largest Manufactory of Bee Hives Sections, etc., in the World!

Our capacity now is a **CAR-LOAD OF GOODS DAILY.**

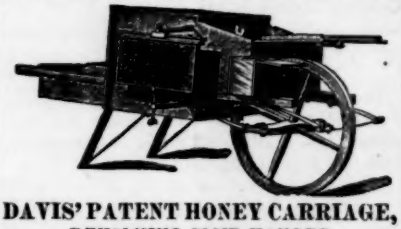
NOTICE.—In enlarging our factory last year, we were put behind with our work so that by spring, were obliged to return many orders. Now we have ample stock ahead and can fill all orders promptly.

Write for Price-List for 1885.

G. B. LEWIS & CO.,

13ABtf WATERTOWN, WIS.

SYSTEMATIC AND CONVENIENT.



DAVIS' PATENT HONEY CARRIAGE,

REVOLVING COMB-HANGER,

Tool Box and Recording Desk Combined.

Price, complete, only..... $18.00.

For sale by **ALFRED H. NEWMAN,**

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HELP for working people. Send 10 cents postage, and we will mail you *free*, a royal, valuable sample box of goods that will put you in the way of making more money in a few days than you ever thought possible at any business. Capital not required. You can live at home and work in spare time only, or all the time. All of both sexes, of all ages, grandly successful. 50 cents to $5 easily earned every evening. That all who want work may test the business, we make this unparalleled offer: To all who are not well satisfied we will send $1 to pay for the trouble of writing us. Full particulars, directions, etc., sent free. Immense pay absolutely sure for all who start at once. Don't delay. Address STINSON & CO.

51A1y Portland, Maine.

BINGHAM SMOKERS.

I can sell the above Smokers at MANUFACTURERS' PRICES, by mail or express, at wholesale or retail. All the latest improvements, including THE CONQUEROR, and THE DOCTOR.

Send for my 32-page Illustrated Catalogue of Bee-Keepers' Supplies of every description.

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1879. —— ITALIAN —— 1885.

QUEENS!

FOR ITALIAN QUEENS in their purity, and that cannot be excelled, **Comb Foundation** and **Supplies** generally, send for Circular.

12 UNTESTED QUEENS FOR $11.00.

15A12t **T. S. HALL, Kirby's Creek, Ala.**

Dadant's Foundation Factory, wholesale and retail. See Advertisement in another column.

ELECTROTYPES

Of Engravings used in the Bee Journal for sale at 25 cents per square inch—no single cut sold for less than 50c. **THOMAS G. NEWMAN,**

925 West Madison Street Chicago, Ill.

SECTIONS.

Job Lot—Cheap!

I **HAVE** received a Job Lot of **25,000** One-Piece Sections with square groove, which I will close out at **$4.00** per 1,000, or $2.50 for 500. The size is: top and bottom, 6 inches; sides, 5¼ inch; width of section, 1¾ inches—narrow tops.

ALFRED H. NEWMAN,

923 West Madison Street, - CHICAGO, ILL.

BEE-KEEPERS' GUIDE;

Or, MANUAL OF THE APIARY.

12,000 SOLD SINCE 1876.

13th Thousand Just Out!

10th Thousand Sold in Just Four Months

3,000 Sold Since May, 1883.

More than 50 pages, and more than 50 fine illustrations were added in the 8th edition. The whole work has been thoroughly revised, and contains the very latest in respect to bee-keeping. It is certainly the fullest and most scientific work treating of bees in the World. Price, by mail, **$1 25.** Liberal discount to dealers and to clubs.

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